

Appl. No. 10/694,263
Reply to Office Action of November 14, 2006

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 5. (Cancelled)

6. (Currently Amended) A polishing method for polishing a metal film formed on a wafer surface having concave and convex comprising:

a step of polishing said metal film by alternating an electropolishing, involving no mechanical polishing element, with a chemical mechanical polishing or chemical buffing involving no electropolishing element, and

wherein the electropolishing end point in a last electropolishing process among a plurality of electropolishing processes is determined by a change of a current waveform resulting from electropolishing said metal film, and

wherein said electropolishing is continued past the determined electropolishing end point while reducing a current applied in said electropolishing until a current density in an electropolished surface reaches a predetermined current density or less.

7. (Original) The polishing method according to claim 6, wherein said electropolishing is conducted to roughen said metal surface, and said chemical mechanical polishing or chemical buffing is conducted to smoothen said metal film surface roughened by said electropolishing.

8. (Cancelled)

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9. (Currently Amended) The polishing method according to claim 8 6, wherein said electropolishing end point is found by differentiation of said change of the current waveform.

Claims 10 – 11. (Cancelled)

12. (Currently Amended) A polishing method for polishing a metal film formed on a wafer surface having concave and convex comprising:

a step of polishing said metal film by alternating an electropolishing, including no mechanical polishing element, with a chemical mechanical polishing or chemical buffing involving no electropolishing element, and

wherein the electropolishing end point in a last electropolishing process among a plurality of electropolishing processes is determined by a change of a current waveform resulting from electropolishing said metal film, and

wherein said electropolishing is continued past the determined electropolishing end point while reducing a current applied in said electropolishing until a current density in an electropolished surface reaches a predetermined current density or less.

13. (Previously Presented) The polishing method according to claim 12, wherein said electropolishing is conducted to roughen said metal surface, and said chemical mechanical polishing is conducted to smoothen said metal film surface roughed by said electropolishing.

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Claim 14. (Cancelled)

15. (Currently Amended) The polishing method according to claim 14 12, wherein said electropolishing end point is found by differentiation of said change of the current waveform.

16. (Currently Amended) A polishing method for polishing a metal film formed on a wafer surface having concave and convex comprising:

a step of polishing said metal film by alternating an electropolishing, including no mechanical polishing element, with a chemical mechanical polishing or chemical buffing, involving no electropolishing element, there being at least two separate steps of electropolishing and two separate steps of chemical mechanical polishing or chemical buffing,

wherein the electropolishing end point in a last electropolishing process among a plurality of electropolishing processes is determined by a change of a current waveform resulting from electropolishing said metal film, and

wherein said electropolishing is continued past the determined electropolishing end point while reducing a current applied in said electropolishing until a current density in an electropolished surface reaches a predetermined current density or less.

17. (Previously Presented) The polishing method according to claim 16, wherein said electropolishing is conducted to roughen said metal surface, and said chemical

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mechanical polishing is conducted to smoothen said metal film surface roughed by said electropolishing.

18. (Cancelled)

19. (Currently Amended) The polishing method according to claim ~~18~~ 16, wherein said electropolishing end point is found by differentiation of said change of the current waveform.

Claims 20. – 22. (Cancelled)